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10/071,475	02/07/2002	Ivan N. Vukovic	CE08733R	1921

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EXAMINER	
DUONG, CHRISTINE T	
ART UNIT	**PAPER NUMBER**
2616	

NOTIFICATION DATE	DELIVERY MODE
06/03/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/071,475	VUKOVIC ET AL.	
	Examiner	Art Unit	
	CHRISTINE DUONG	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/10/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This is in response to the Applicant's arguments and amendments filed on 10 January 2008 in which claims 1-9 are currently pending.

Claim Rejections - 35 USC § 102

1. Claims 7-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsumoto et al. (US Patent No. 5,414,717).

Regarding claim **7**, Matsumoto et al. discloses an apparatus comprising:

a buffer storing NAKs ("the NAK register 14 stores NAK data, as shown in FIG. 5(d), being a signal train which announces when anything abnormal occurs at the time of reception to the transmission side terminal and has high priority (dominant) at transmission line 50" column 8, lines 22-27 and fig. 4); and

logic circuitry coupled to the buffer (fig. 4), the logic circuitry having a transmission status of a transmitter as an input and outputting instructions for a NAK generator to generate NAKs based on the transmission status of the transmitter ("reference character 3 designates a transmitting buffer for storing a transmission data train which has been transferred from the control microcomputer 30 through the microcomputer interface 1 and is to be transmitted to the other communication terminal. Reference character 4 designates a receiving buffer for storing a reception data train which has been delivered from another communication terminal and has been transmitted to this communication terminal through the transmission line 50. The transmitting buffer 3 and the receiving buffer 4 are controlled by the buffer control circuit 5 so that storing and

reading out of the data train are carried out" column 7, lines 14-26 and further "the RSP control circuit 12 controls the ACK register 13 and the NAK register 14 to transmit RSP" column 8, lines 17-18).

Regarding claim **8**, Matsumoto et al. discloses everything claimed as applied above (see claim 7). In addition, Matsumoto et al. discloses the transmission status of the transmitter comprises information on whether or not data or other channel information is currently awaiting transmission ("reference character 3 designates a transmitting buffer for storing a transmission data train which has been transferred from the control microcomputer 30 through the microcomputer interface 1 and is to be transmitted to the other communication terminal" column 7, lines 14-18).

Claim Rejections - 35 USC § 103

2. Claims 1-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. further in view of Shiroshita et al. (US Patent No. 5,892,894).

Regarding claim **1**, Matsumoto et al. discloses a method of negative acknowledgment (NAK) suppression, the method comprising the steps of:

determining that a NAK needs to be transmitted ("the RSP control circuit 12 controls the ACK register 13 and the NAK register 14 to transmit RSP" column 8, lines 17-18);

determining if data or other channel information currently needs to be transmitted over a channel ("reference character 3 designates a transmitting buffer for storing a transmission data train which has been transferred from the control microcomputer 30

through the microcomputer interface 1 and is to be transmitted to the other communication terminal" column 7, lines 14-18); and

transmitting the NAK if data and other channel information does not need to be transmitted over the channel, otherwise buffering the NAK ("in the case where the transmission error detection circuit 9 judges that there is no RSP 110 or that RSP data is NAK (step S7, S8), the transmission error detection circuit 9 announces occurrence of a no RSP error or a NAK error to the buffer control circuit 5 (step S12, S13)" column 11, lines 56-59 and "the NAK register 14 stores NAK data, as shown in FIG. 5(d), being a signal train which announces when anything abnormal occurs at the time of reception to the transmission side terminal and has high priority (dominant) at transmission line 50" column 8, lines 22-27).

However, Matsumoto et al. fails to specifically disclose transmitting the NAK if data and other channel information does not need to be transmitted over the channel, as claimed.

Nevertheless, Shiroshita et al. teaches "the server 100 notifies the terminal 300-3 about the fact that it is in a poor performance state and the data transmission is interrupted, by means of the poor performance notification (step S203)" (Shiroshita et al. column 7, lines 15-18).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to transmit the NAK if data and other channel information does not need to be transmitted over the channel because "the server 100 carries out the re-transmission of the unreceived data with respect to the terminal 300-3

which is in the poor performance state (step S205)" (Shiroshita et al. column 7, lines 26-29).

Regarding claim **2**, Matsumoto et al. and Shiroshita et al. disclose everything claimed as applied above (see claim 1). In addition, Matsumoto et al. discloses transmitting the NAKs if the predetermined number of NAKs have been buffered, otherwise buffering the NAK ("the RSP control circuit 12, after detecting the EOD 104 (step S41), delivers NAK data of higher priority (dominant) signal train at the transmission line 50 stored in the NAK register 14 to the transmission line 50 by the frame shown in FIG. 6(c) through the communication control circuit 6 (step S42). Thus it announces that an overrun error has occurred at the reception side terminal (step S43) and the transmission side terminal to deliver again a transmission after a time delay for reading out the receiving buffer 4" column 10, lines 19-28).

However, Matsumoto et al. Fails to specifically disclose determining if a predetermined number of NAKs have been buffered, as claimed.

Nevertheless, Shiroshita et al. teaches "the terminal is judged as a poor performance terminal according to a data receiving state of the terminal indicated by the negative acknowledge (NACK) from the terminal or a number of times for which a time-out occurs while not receiving any acknowledge from the terminal" (Shiroshita et al. column 6, lines 13-20).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to determine if a predetermined number of NAKs have been buffered because "in a case of using a number of times for which a time-out

occurs while not receiving any acknowledge from the terminal, the acknowledge from the terminal is urged by an inquiry packet, and when the time-out is repeated for over a prescribed number of times, the terminal is judged as a poor performance terminal" (Shiroshita et al. column 6, lines 22-27).

Regarding claim **3**, Matsumoto et al. and Shiroshita et al. disclose everything claimed as applied above (see claim 2). However, Matsumoto et al. fails to specifically disclose the step of transmitting the NAKs if the predetermined number of NAKs have been buffered comprises the step of transmitting the NAKs if the number of NAKs is equal to an amount of NAKs required to fill an over-the-air frame, as claimed.

Nevertheless, Shiroshita et al. teaches "the judgment result is notified to the terminal state management unit 106. In a case of using a number of times for which a time-out occurs while not receiving any acknowledge from the terminal, the acknowledge from the terminal is urged by an inquiry packet, and when the time-out is repeated for over a prescribed number of times, the terminal is judged as a poor performance terminal" (Shiroshita et al. column 6, lines 20-27).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to transmit the NAKs if the number of NAKs is equal to an amount of NAKs required to fill an over-the-air frame because "the terminal performance judgment unit 107 judges whether the terminal 300 is in the poor performance state or not according to the acknowledge returned from the terminal 300" (Shiroshita et al. column 6, lines 13-16).

Regarding claim **4**, Matsumoto et al. discloses a method comprising the steps of:

determining that a NAK needs to be transmitted over a channel ("the RSP control circuit 12 controls the ACK register 13 and the NAK register 14 to transmit RSP" column 8, lines 17-18);

determining a number of NAKs currently buffered; and

transmitting the NAKs currently buffered along with the NAK if the predetermined number of NAKs have been buffered, otherwise buffering the NAK ("the RSP control circuit 12, after detecting the EOD 104 (step S41), delivers NAK data of higher priority (dominant) signal train at the transmission line 50 stored in the NAK register 14 to the transmission line 50 by the frame shown in FIG. 6(c) through the communication control circuit 6 (step S42). Thus it announces that an overrun error has occurred at the reception side terminal (step S43) and the transmission side terminal to deliver again a transmission after a time delay for reading out the receiving buffer 4" column 10, lines 19-28).

However, Matsumoto et al. fails to specifically disclose that determining a number of NAKs currently buffered, as claimed.

Nevertheless, Shiroshita et al. teaches "the terminal is judged as a poor performance terminal according to a data receiving state of the terminal indicated by the negative acknowledge (NACK) from the terminal or a number of times for which a time-out occurs while not receiving any acknowledge from the terminal" (Shiroshita et al. column 6, lines 13-20).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to determine a number of NAKs currently buffered

because “in a case of using a number of times for which a time-out occurs while not receiving any acknowledge from the terminal, the acknowledge from the terminal is urged by an inquiry packet, and when the time-out is repeated for over a prescribed number of times, the terminal is judged as a poor performance terminal” (Shiroshita et al. column 6, lines 22-27).

Regarding claim **5**, Matsumoto et al. and Shiroshita et al. discloses everything claimed as applied above (see claim 4). In addition, Matsumoto et al. discloses determining if data or other channel information currently needs to be transmitted over the channel (“reference character 3 designates a transmitting buffer for storing a transmission data train which has been transferred from the control microcomputer 30 through the microcomputer interface 1 and is to be transmitted to the other communication terminal” column 7, lines 14-18); and transmitting the NAK if data and other channel information does not need to be transmitted over the channel, otherwise buffering the NAK (“in the case where the transmission error detection circuit 9 judges that there is no RSP 110 or that RSP data is NAK (step S7, S8), the transmission error detection circuit 9 announces occurrence of a no RSP error or a NAK error to the buffer control circuit 5 (step S12, S13)” column 11, lines 56-59 and “the NAK register 14 stores NAK data, as shown in FIG. 5(d), being a signal train which announces when anything abnormal occurs at the time of reception to the transmission side terminal and has high priority (dominant) at transmission line 50” column 8, lines 22-27).

However, Matsumoto et al. fails to specifically disclose transmitting the NAK if data and other channel information does not need to be transmitted over the channel, as claimed.

Nevertheless, Shiroshita et al. teaches "the server 100 notifies the terminal 300-3 about the fact that it is in a poor performance state and the data transmission is interrupted, by means of the poor performance notification (step S203)" (Shiroshita et al. column 7, lines 15-18).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to transmit the NAK if data and other channel information does not need to be transmitted over the channel because "the server 100 carries out the re-transmission of the unreceived data with respect to the terminal 300-3 which is in the poor performance state (step S205)" (Shiroshita et al. column 7, lines 26-29).

Regarding claim **6**, Matsumoto et al. and Shiroshita et al. disclose everything claimed as applied above (see claim 4). However, Matsumoto et al. fails to specifically disclose the step of transmitting the NAKs if the predetermined number of NAKs have been buffered comprises the step of transmitting the NAKs if the number of NAKs is equal to an amount of NAKs required to fill an over-the-air frame, as claimed.

Nevertheless, Shiroshita et al. teaches "the judgment result is notified to the terminal state management unit 106. In a case of using a number of times for which a time-out occurs while not receiving any acknowledge from the terminal, the acknowledge from the terminal is urged by an inquiry packet, and when the time-out is

repeated for over a prescribed number of times, the terminal is judged as a poor performance terminal" (Shiroshita et al. column 6, lines 20-27).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to transmit the NAKs if the number of NAKs is equal to an amount of NAKs required to fill an over-the-air frame because "the terminal performance judgment unit 107 judges whether the terminal 300 is in the poor performance state or not according to the acknowledge returned from the terminal 300" (Shiroshita et al. column 6, lines 13-16).

Regarding claim **9**, Matsumoto et al. discloses everything claimed as applied above (see claim 7). However, Matsumoto et al. fails to specifically disclose the logic circuitry additionally outputs instructions for the NAK generator to generate NAKs based on a number of NAKs stored in the buffer, as claimed.

Nevertheless, Shiroshita et al. teaches "the terminal is judged as a poor performance terminal according to a data receiving state of the terminal indicated by the negative acknowledge (NACK) from the terminal or a number of times for which a time-out occurs while not receiving any acknowledge from the terminal" (Shiroshita et al. column 6, lines 13-20).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to output instructions for the NAK generator to generate NAKs based on a number of NAKs stored in the buffer because "in a case of using a number of times for which a time-out occurs while not receiving any acknowledge from the terminal, the acknowledge from the terminal is urged by an

inquiry packet, and when the time-out is repeated for over a prescribed number of times, the terminal is judged as a poor performance terminal" (Shiroshita et al. column 6, lines 22-27).

Response to Arguments

Previous informalities objection to claim 7 is withdrawn in view of Applicant's amendment.

3. Applicant's arguments have been fully considered but they are not persuasive.

In response to Applicant's argument regarding claim 7 that Matsumoto does not mention a NAK generator or instructions for a NAK generator to generate NAKs based on the transmission status of the transmitter, the examiner respectfully disagrees. Matsumoto discloses "the RSP control circuit 12, after detecting the EOD 104 (step S41), delivers NAK data of higher priority (dominant) signal train at the transmission line 50 stored in the NAK register 14 to the transmission line 50 by the frame shown in FIG. 6(c) through the communication control circuit 6 (step S42). Thus it announces that an overrun error has occurred at the reception side terminal (step S43) and the transmission side terminal to deliver again a transmission after a time delay for reading out the receiving buffer 4" (Matsumoto column 10 lines 19-28) and fig. 4 in addition. This shows that a NAK is generated based on the status of the transmitter. Therefore, Matsumoto discloses a NAK generator or instructions for a NAK generator to generate NAKs based on the transmission status of the transmitter.

In response to Applicant's argument regarding claim 1 that Shiroshita does not mention or suggest that before the poor performance terminal transmits the negative

acknowledgment, it first determines whether there is data or other channel information to send, the examiner respectfully disagrees. Shiroshita discloses "the server 100 notifies the terminal 300-3 about the fact that it is in a poor performance state and the data transmission is interrupted, by means of the poor performance notification (step S203). Thereafter, the server 100 manages the state of this terminal 300-3 separately from the normal terminals. Even after this recording of the poor performance state of the terminal 300-3, the server 100 continues the communication such as data transmission, re-transmission, acknowledge receiving, etc. with respect to the normal terminals 300-1 and 300-2. When the data transmission with respect to the normal terminals 300-1 and 300-2 is completed (step S204), the server 100 carries out the re-transmission of the unreceived data with respect to the terminal 300-3 which is in the poor performance state (step S205)" (Shiroshita column 7 lines 16-30). This shows that before the re-transmission, all other data transmissions are finished. Therefore, Shiroshita discloses before the poor performance terminal transmits the negative acknowledgment, it first determines whether there is data or other channel information to send.

In response to Applicant's argument regarding claim 4 that Matsumoto does not disclose buffering a number of NAKs and transmitting the NAKs over the communication channel if a predetermined number of NAKs have been buffered, the examiner respectfully disagrees. As mentioned in the previous office action, Shiroshita discloses "The terminal is judged as a poor performance terminal according to a data receiving state of the terminal indicated by the negative acknowledge (NACK) from the terminal or a number of times for which a time-out occurs while not receiving any

acknowledge from the terminal" (Shiroshita column 6 lines 13-20). In addition, Shiroshita discloses "when a negative acknowledge (NACK) is received from the terminal, the terminal performance judgment unit 107 obtains this negative acknowledge from the re-transmission control unit 101 and judges a data receiving state of the terminal which issued this negative acknowledge. At the step S504, when the terminal which issued the negative acknowledge is judged as a poor performance terminal at the terminal performance judgment unit 107, the poor performance state of this terminal is recorded at the terminal state management unit 106, while the unreceived packets of this terminal are recorded at the re-transmission management unit 104" (Shiroshita column 8 line 59 to column 9 line 7) and "this unreceived packet number sequence 602 is usually identical to the unreceived packet number sequence contained in the negative acknowledge from the terminal and given in terms of numerical values, appropriate range symbols, etc." (Shiroshita column 5 lines 63-67). In addition, as mentioned in the previous office action, Matsumoto discloses "the RSP control circuit 12, after detecting the EOD 104 (step S41), delivers NAK data of higher priority (dominant) signal train at the transmission line 50 stored in the NAK register 14 to the transmission line 50 by the frame shown in FIG. 6(c) through the communication control circuit 6 (step S42). Thus it announces that an overrun error has occurred at the reception side terminal (step S43) and the transmission side terminal to deliver again a transmission after a time delay for reading out the receiving buffer 4" (Matsumoto column 10 lines 19-28) and further "in the case where the transmission error detection circuit 9 judges that there is no RSP 110 or that RSP data is NAK (step S7, S8), the transmission error detection circuit 9

announces occurrence of a no RSP error or a NAK error to the buffer control circuit 5 (step S12, S13). The buffer control circuit 5 announces the occurrence of the aforesaid error to the control microcomputer 30 and requests to deliver transmission data again or requests to process of resending a transmission after a time delay for reading out the receiving buffer 4 at the reception site terminal" (Matsumoto column 10 lines 46-56). The combination of Shiroshita and Matsumoto show a number of NAKs are buffered and are transmitted if a predetermined number of NAKs have been buffered. Therefore, Shiroshita and Matsumoto disclose buffering a number of NAKs and transmitting the NAKs over the communication channel if a predetermined number of NAKs have been buffered.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Duong whose telephone number is (571) 270-1664. The examiner can normally be reached on Monday - Friday: 830 AM-6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christine Duong/

Examiner, Art Unit 2616

04/23/2008

/Seema S. Rao/

Supervisory Patent Examiner, Art Unit 2616